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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/749,741	12/28/2000	Tsuyoshi Shinohara	PM 276499 F 20039105	5544

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EXAMINER

LAM, THANH

ART UNIT PAPER NUMBER

2834

DATE MAILED: 02/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.  
**09/749,741**Applicant(s)  
**Shinohara**Examiner  
**Thanh Lam**Art Unit  
**2834**

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some\* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

### Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3,&6 20) ☐ Other:

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## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3,5,7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kunii (USPN. 5,420,713) in view of Tada (USPN. 5,448,121).

Kunii discloses a light deflecting electric motor comprising: a stator assembly (31) including a base (2a), a fixed shaft (15) fixed to the base and a stator mounted on the base; a rotor assembly including a rotating member (20) rotatably mounted on a plurality of bearings (19) further mounted on the fixed shaft, and a rotor yoke (25) provided on the rotating member to hold the rotor magnet (30), and the balancing groove (26) is formed in the rotor yoke. a polygon mirror (11) mounted on the rotating member and a rotor mounted on the rotating member; and a balancing plane (27) provided in the vicinity of a plane (the radial surface of the

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rotor 25) which is generally perpendicular to a center of rotation of the rotor assembly. However, Kunii does not disclose the rotor assembly having a center of gravity located between the bearings.

Tada discloses a rotor assembly (4) having a center of gravity (15) located between the bearings (6,8). The purpose of having the center gravity in between the bearings is for balancing the rotor.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to rearrange the rotor assembly and bearings of Kunii to accommodate the rotor assembly having the center gravity in between the bearings as taught by Tada in order to improve the balance of the rotor assembly.

Regarding claim 3, it is noted that Tada discloses the rotor assembly has a balancing groove (below the balance ring 26) formed in a portion thereof located below the bearings.

Regarding claims 5,7, and 9, it is noted that Tada discloses the rotor is generally annular and includes a rotor magnet (21) radially opposed to the stator (23) with respect to the rotor.

4. Claims 11,13,15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kunii in view of Tada as applied to claims 1,3,5,7, and 9 above, and further in view of Suzuki (5,903,300).

Kunii, and Tada disclose every aspect of claimed invention except for the balancing groove is disposed inside relative to the reflecting surface of the polygon mirror.

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Suzuki discloses that a balancing groove (32a) is disposed inside relative to the reflecting surface of the polygon mirror (8) for the purpose of balancing.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the mirror of Kunii and provide the balancing groove as taught by Suzuki in order to improve the balance of the polygon mirror.

5. Claims 2,4,6,8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kunii in view of Tada as applied to claim 1 above, and further in view of Norris (USPN. 5,925,955).

Kunii and Tada disclose every aspect of claimed invention except for a ball bearing including a number of rolling members each made of ceramic.

Norris discloses a ball bearing including a number of rolling members (20) each made of ceramic (col. 1, lines 12-14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the bearings of Kunii by ceramic as taught by Norris in order to prevent the bearings from wearing.

Regarding 4, it is noted that Tada discloses the rotor assembly has a balancing groove (below the balance ring 26) formed in a portion thereof located below the bearings.

Regarding claims 6, 8, 10, it is noted that Tada discloses the rotor is generally annular and includes a rotor magnet (21) radially opposed to the stator (23) with respect to the rotor.

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6. Claims 12,14,16, and 18 rejected under 35 U.S.C. 103(a) as being unpatentable over Kunii in view of Tada and Norris as applied to claims 1-2,4,6,8 and 10 above, and further in view of Suzuki (5,903,300).

Kunii, Tada, and Norris disclose every aspect of claimed invention except for the balancing groove is disposed inside relative to the reflecting surface of the polygon mirror.


Suzuki discloses that a balancing groove (32a) is disposed inside relative to the reflecting surface of the polygon mirror (8) for the purpose of balancing.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the mirror of Kunii and provide the balancing groove inside the reflecting surface

***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Lam whose telephone number is (703) 308-7626. The fax phone number for this Group is (703) 305-3431.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0656.



Thanh Lam

Patent Examiner

2/1/2002